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Prevalence of Tuberculosis in Cattle and Buffalo in Qena, Egypt

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ABSTRACT

The study was undertaken to understand the epidemiological status of Tuberculosis infection in animals in Egypt. Cattle, buffaloes, sheep and goat were observed in slaughter house during the period of January 2014 till January 2015 in Qena Governorate. Abattoir surveillance showed 0.36% (23/6390) for carcasses slaughtered in Qena slaughter house; the result reflected high prevalence of Tuberculosis infection in cattle more than buffaloes, in addition to sheep examined during experimental period one year was free of Tuberculosis (TB). This result indicated that TB still circulates between farm animals in Egypt. Further studies are needed to identify the TB types that isolated from farms and wild animals in Egypt.

Key words: Tuberculosis, Prevalence, Egypt

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INTRODUCTION

Bovine tuberculosis was considered as one of the most important veterinary diseases which can spread to humans (Pavlik et al., 2002; Pavlik et al., 2003; Steele, 1980 and Sternberg et al., 2002). In addition to *Mycobacterium tuberculosis* was primarily pathogen for human. Also, *M. tuberculosis* infection had been reported in cattle and domesticated animal that living in close and prolonged contact with humans (Alfonsoet al., 2004; Aranaz et al., 1999; Boulahbal et al., 1978; Chandrasekharan and Ramakrishnan, 1969; Oh et al., 2002; Steele, 1980 and Sternberg,2002)

Tuberculosis (TB) in cattle is a human health issue for that the implication of bovine tuberculosis in the human cases has to be developed and disseminated for effective control. The role of the different animal products like milk and meat had the major role in transmission of TB, in addition to wildlife and pets also threat our health. TB infection is transmissible from cattle to humans directly by aerogenous route (WHO, 1994) and through direct contact with material contaminated with nasal and oral secretions from infected animals (Beals, 2007).

Contaminated milk products had a greater risk more than ingestion of infected meat products, because negative infected carcasses were change it, arts of carcasses that were processed as meat products were inspected and thoroughly cooked (Konhya et al., 1980). Thorough cooking (77°C) for 30 min all risk of infection virtually removed (Hubbert and Hagstad, 1991and EUFIC, 2006).

MATERIAL AND METHODS

Study Area

This study was carried out in Qena city, which containing many farms for milk and meat product located in the South part of Egypt (26°10′12″N 32°43′38″E / 26.17000°N 32.72722°E), Qena city has four seasons, the temperature range from (30 to 45^{0}C). The study was carried out between January 2014 to January 2015. A total of 6390 (6220 male and 170 female) mixed breed animals with age ranged from 3 to 5 years were selected randomly for this study , cattle are come from mixed local breed with Friesian and local breed of sheep and buffalo in Qena city, Egypt.

Clinical Signs

Animals were examined physically for breed, age, sex, and body condition score of the animals were recorded. Additionally, body temperature, pulse rate, respiratory rate, type of nasal discharge, condition of regional lymph nodes, and visible mucous membranes were examined and recorded for individual animals.

Postmortem Inspection

Inspection of each carcass was undertaken in detail according to (Ameni et al., 2007 and Biffa et al., 2010). Particular emphasis was given during examination to certain organs and lymph nodes that were carefully inspected for

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the presence of suspected lesions. The seven lobes of the two lungs, each lobe were sectioned into 2 cm thick slices to facilitate the detection of lesions. Similarly, lymph nodes were sliced into thin sections and inspected for the presence of visible lesions. Moreover, organs such as liver, kidneys, mammary gland and intestines were also thoroughly examined. The cut surfaces were examined under bright light for the presence of abscess, cheesy mass, and tubercles (Corner, 1994). When gross lesions suggestive of bovine tuberculosis were found in any of the tissues, the animal was classified as having lesions.

RESULTS

Twenty three animals included one buffalo and 22 cattle showed lesions of TB in different internal organs include lung, liver, spleen and lymph node (Figure1). From a total 6390 animals during the period of January 2104to January 2105in Qena slaughter house, Egypt with a prevalence rate of 0.36%, although all sheep were negative (Table 1 and 2). Interesting we found in male cattle the appearance of TB was on April, May, June and July, but in females was mostly on December (Table 1). The result of examination showed that there were appearance of the sever lesions in lung, liver, spleen and lymph node (Figure 1).

Table 1. Number of Positive animals for TB in Qena city, Egypt from January 2014 to

Animals	Gender	January	February	March	April	May	June	July	August	September	October	November	December	Total
Cattle	Male	-	-	-	2	4	4	-	-	1	-	-	-	11
	Female	-	1	-	-	-	-	-	-	-	-	-	10	11
Buffalo	Male	-	-	-	-	-	-	-	1	-	-	-	-	1
	Female	-	-	-	-	-	-	-	-	-	-	-	-	-
Sheep	Male	-	-	-	-	-	-	-	-	-	-	-	-	-
	Female	-	-	-	-	-	-	-	-	-	-	-	-	-
	Total	-	1	-	2	4	4	-	1	1	-	-	10	23

Table 2. Total Number of Infected and uninfected animals examined in Qena city, Egypt from January 2014 to January 2015

Animals	Gender	Total	Number of animal infected by TB
Cattle	Male	5787	11 (0.19٪)
	Female	123	11 (8.94%)
Buffalo	Male	306	1 (٪0.33)
	Female	40	-
Sheep	Male	127	-
	Female	7	-
Total		6390	23 (0.36%)

DISCUSSION

The present results were consistent with the TB epidemic in Egyptian cattle and buffalo, because prefecture Qena is in southern part of Egypt, suggesting that TB continues to spread among animal in Egypt.

Our result of prevalence rate 0.36%,was less than other prevalence rate recorded in African countries also in cattle herds in the majority of studies the prevalence did not exceed more than 1% (Pavlik et al., 2003; Popluhar et al., 1974; Smith, 1984 and Thoen et al., 1981) but in some studies at dairy farms, the prevalence was very high like in Ethiopia50% (Alfonso et al., 2004)and 14.5 % in Eritrea (Pavlik et al., 2003) in smallholder dairy farms in Ethiopia was 14.2% (Anonymous, 1964).

The low percentage of TB in animals in Egypt might be indicative of the success of the TB eradication program in domestic animals. TB in animal can act as a source of infection for other species, including human (Steele, 1980; Pavlik et al., 2002-2003). Our results indicated that TB infection in animal should become a target for eradication programs like the one implemented in the human population in Egypt. There were a high reported interaction of livestock with a poor knowledge of most cattle owners concern in TB and its transmission pathways among people (Katale et al., 2013). The

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most People at risks are those in contact with infected animals such as veterinarians, abattoir workers, meat inspectors, farmers, milkers, animal keepers, animal dealers and laboratory personnel (O'Donahue et al., 1985; Ofukwu, 2006; Yumi et al., 2007). The high prevalence of human TB in two African countries Algeria and Sudan was 6.2% and 7.4% respectively (Boulahbal et al., 1978 and Sulieman and Hamid, 2002).

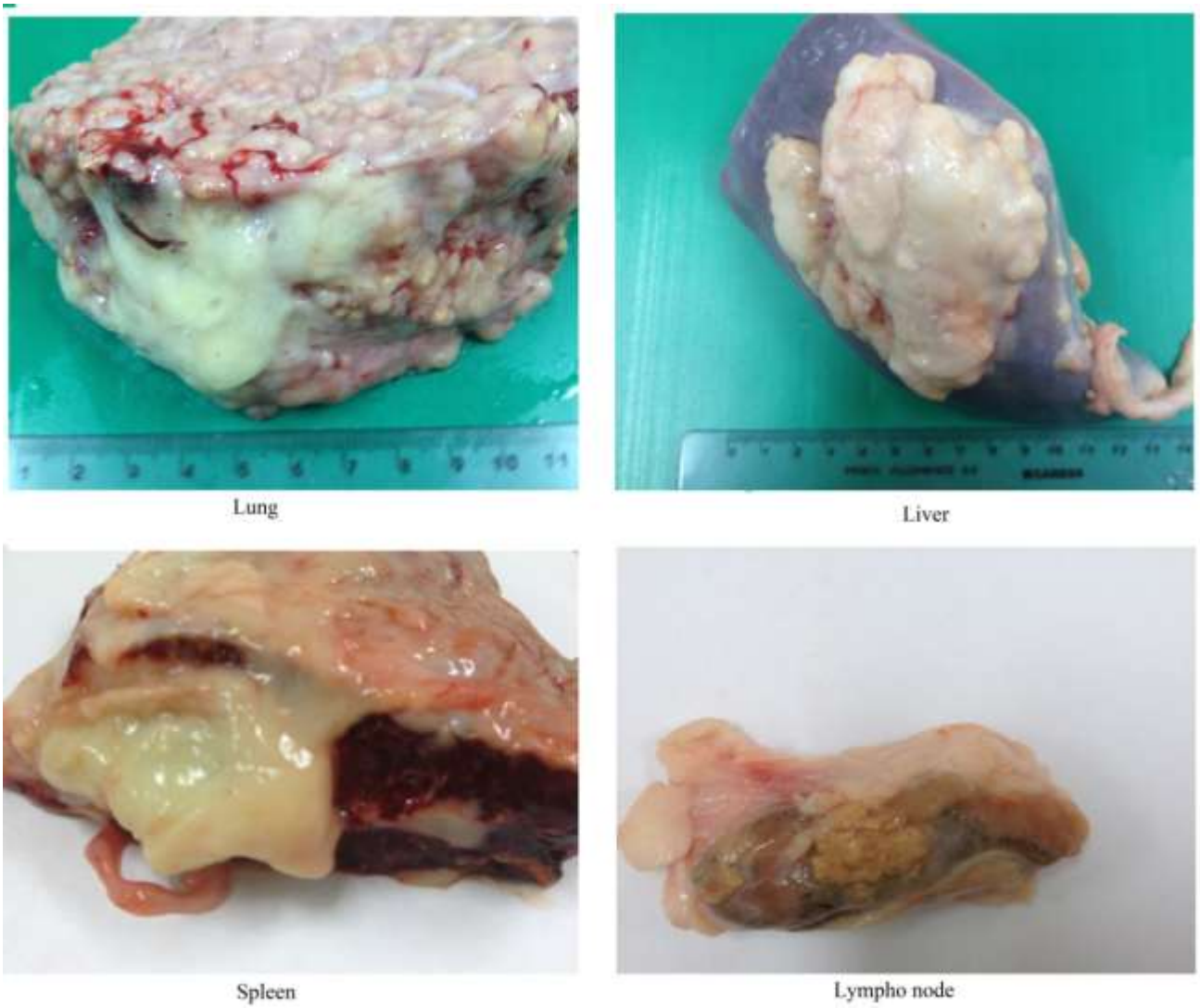

Figure 1. Tuberculosis Lesion in different organs of cattle in Qena city, Egypt

CONCLUSION

TB continues to infect animal in Egypt but the prevalence was very low. Therefore, the possibility of transmission to human may also be low, since TB seems to be rare even within the animal population. Nevertheless, the continued threat of economic loss in the animal industry due to this persistent TB should not be ignored.

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